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ISDH Leads Development of a Statewide Trauma System

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A trauma system is an organized, coordinated effort to deliver the full range of care to injured patients, including pre-hospital assessment, hospital emergency department (ED) evaluation and care, hospitalization (often with surgical intervention), and rehabilitation.

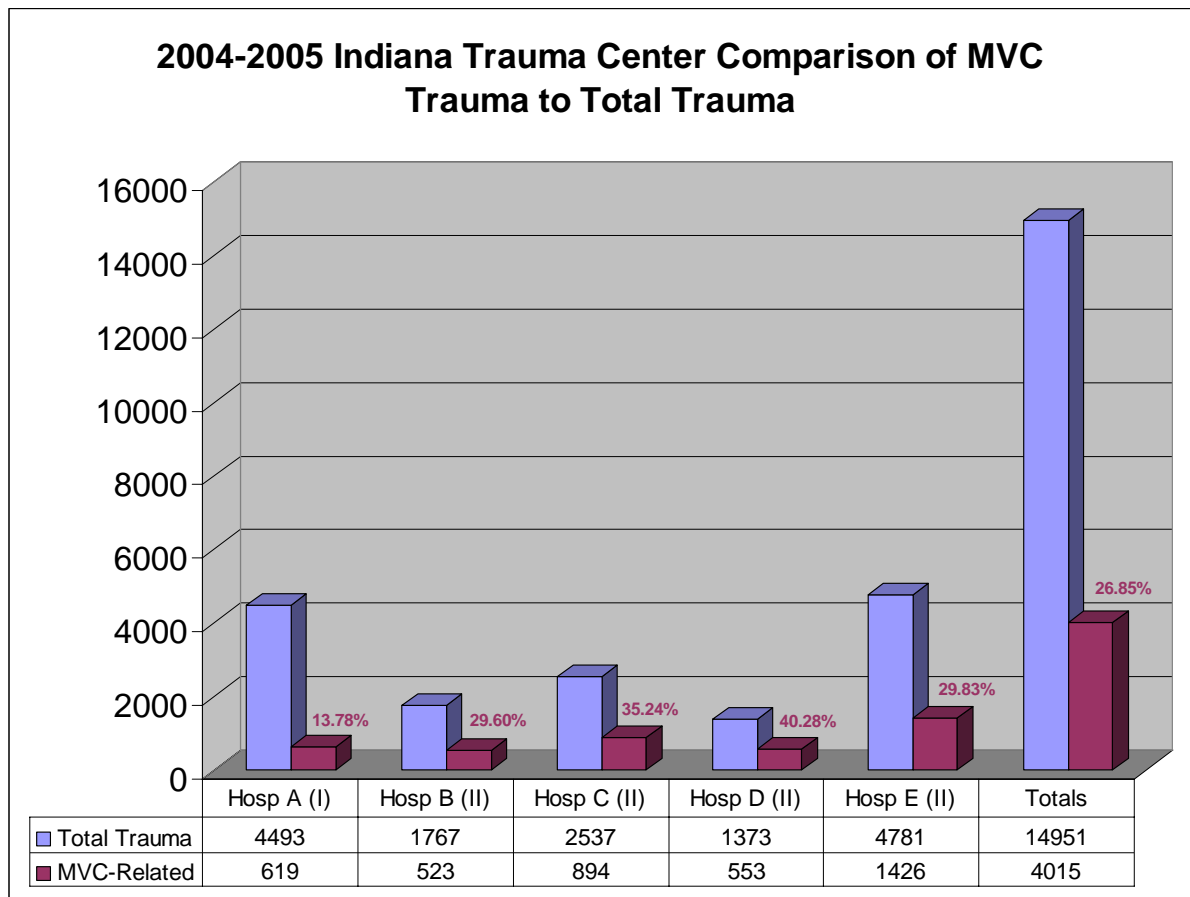
Until March 2006, Indiana was one of two states without any state legislation or state government programming that addressed a statewide trauma system. Trauma refers to people who sustain severe injuries and, thus, need rapid evaluation by pre-hospital providers and transport to specific trauma center hospitals with trauma care capabilities. These trauma center hospitals provide comprehensive medical and surgical services that are available at all times. While trauma center hospitals have EDs that are well staffed and well equipped to care for Hoosiers who receive severe or extensive injuries, not all hospital EDs are trauma centers, which is contrary to popular belief.

The goal of a statewide trauma system is to prevent injuries and coordinate care of injured patients in order to accomplish decreased death and disability of Indiana residents related to traumatic injuries. Injuries are the leading cause of death for Hoosiers ages 1-34 years both in Indiana and in the United States. Indiana hospital discharge data for 2002 show that injuries account for 33 percent (one third) of hospital ED visits and 12.5 percent of hospital discharges.

Major contributors to the toll of severe traumatic injuries include motor vehicle crashes (MVC), falls, and assaults. A recent response to a request to Indiana hospital trauma centers for data on MVC demonstrates that MVCs account for an average of 27 percent of all trauma cases treated in five trauma centers that were able to submit these data, illustrating that MVCs have a significant impact on the number and severity of trauma cases treated at Indiana's trauma centers.

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Figure 1.



In 2002, a national assessment by the Trauma-Emergency Medical Services Program of the federal Health Resources and Services Administration (HRSA) demonstrated that emergency medical services (EMS) resources are well developed in Indiana. In sharp contrast, no trauma system existed, according to the criteria used in this assessment.

Indiana's situation related to the deficiency of a statewide trauma system greatly improved when the state legislature passed Senate Bill 284 this year. This legislation provides a starting point for development of a statewide trauma system by designating the Indiana State Department of Health (ISDH) as the lead state agency for trauma system development. It sets the stage for future work that is needed in Indiana by denoting the ability to develop rules pertinent to a state trauma registry and a designation process for various levels of trauma care that can be rendered by hospitals. With rule-making authority, the ISDH and the Advisory Task Force for Trauma System/Emergency Preparedness (Task Force) can proceed with developing the necessary components of a system, which generally include: (1) a trauma registry, (2) standards and procedures for designation of levels of trauma care provided by hospitals, and (3) guidelines or protocols for patient transport and trauma care. This developmental process will take several years to complete.

The ISDH Task Force, with over 50 members, has been meeting regularly since May 2004 to address trauma system issues. This Task Force has representation from all 10 Indiana Public Health Preparedness Districts and from the state Emergency Medical Services Department, part

of the Indiana Department of Homeland Security. The participants come from a variety of hospitals and health professions and also include administrators and several legislators. Organizations involved include the Indiana Hospital & Health Association, the Indiana Rural Health Association, the Indiana State Medical Association, the Indiana Trauma Network, and representation from the Indiana Chapters of the American College of Emergency Physicians, the Emergency Nurses Association, and the American College of Surgeons. Task Force meetings, held quarterly, have attendance of 30 or more members, and lively discussions on a wide range of issues are evident.

Seven Indiana hospitals have undergone a comprehensive review process to meet the stringent American College of Surgeons Committee on Trauma criteria to accomplish verification as Level I or Level II trauma centers able to provide comprehensive trauma care: Wishard Memorial Hospital, Clarian Methodist Hospital, and Riley Hospital for Children in Indianapolis; Deaconess Hospital and St. Mary's Hospital in Evansville; Memorial Hospital in South Bend; and Parkview Hospital in Fort Wayne. In addition, there is growing interest in trauma center development from a hospital system in Northwest Indiana.

Although these seven hospitals collect and analyze data from their trauma centers, there is no systematic examination of trauma care provided across Indiana. The implementation of an Indiana State Trauma Registry, slated for May 2007, will help to remedy this problem. The State Trauma Registry will initially collect data from the seven trauma center hospitals and gradually expand to other hospitals in Indiana.

Subcommittees of the Task Force continue to address the development of a hospital designation process, financing, system development and maintenance, protocols, information management, and education. A short educational DVD entitled "When Minutes Matter," developed by St. Mary's Hospital and based on a similar DVD from the American Trauma Society, is available. "When Minutes Matter" graphically portrays what trauma centers and a trauma system accomplish, presenting the true story of a child severely injured in a MVC in Evansville.

Indiana does a respectable job of managing trauma care, but many people working in the delivery of medical care are aware of situations where appropriate or timely evaluation and patient care were not provided. A statewide trauma system will help to examine such circumstances, assess hospital capabilities across Indiana, and determine ways to improve the system.

Establishment of a program at the ISDH to accomplish a statewide trauma system will promote work on the important public health and health care delivery issue of trauma, which has a major impact on the lives of Hoosiers.

For further information on trauma system development in Indiana, contact Susan Perkins, R.N., Trauma System Manager, by e-mail at sperkins@isdh.IN.gov or by calling 317.234.2890.

Mumps Update – Indiana and the United States, 2006

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As of August 18, the Indiana State Department of Health (ISDH) has reported 10 cases of mumps in 2006. Two of the cases are classified as confirmed (both by PCR assay) and eight are

classified as probable cases. Five of the cases were in children ranging in age from 2-15 years, and five cases were among adults ranging in age from 20-48 years. All cases had symptom onset in the months of March (2 cases), April (4 cases), and May (4 cases).

The ISDH Immunization Program has investigated many reports of suspected mumps cases this year. Since April 24, 2006, oral fluid and/or urine specimens have been collected from 108 persons and analyzed. Two (1.8%) of those 108 persons were confirmed as having mumps by RT-PCR analysis at the Centers for Disease Control (CDC) Laboratory. Outbreaks or significant clustering of confirmed, probable, or suspect cases has not been identified in Indiana. In addition, none of the cases investigated in Indiana had a known direct link to a case from the multi-state outbreak, which began in Iowa and subsequently spread to several other states (see *Immunization Works* article on page 5).

Several issues and concerns arose during the multi-state outbreak:

Source

The source of the outbreak was not identified, but it may have been connected to a large outbreak that has been occurring in the United Kingdom since 2004. Molecular studies indicate that the Iowa epidemic strain was the same as the one seen in the U.K.

Contributing Factors

Multiple factors may have contributed to this outbreak and its spread, including: 1) close contact in college and dormitory settings (many of the Iowa cases were college students); 2) lack of two doses of vaccine in college-age individuals and other adults; and 3) delayed recognition, diagnosis, and reporting of cases.

Vaccination Efficacy

A large proportion of the cases reported having a history (either one or two doses) of immunization against mumps. Since mumps vaccine does not provide protection to all persons and because high coverage levels exist in the United States, it would be expected that most cases would be among vaccinated persons. One dose of mumps vaccine is estimated to have an efficacy of 70-80 percent. Preliminary data from ongoing studies in current and past outbreak areas suggest that two doses of mumps vaccine provides an improved efficacy of 90 percent. It is believed that high coverage levels in exposed populations kept this outbreak from becoming much larger.

Laboratory Testing

Problems interpreting serologic tests for mumps complicated the investigation and epidemiologic analysis of the outbreak in Indiana as well as the outbreak states. Comparison with viral culture and PCR performed at the CDC and the Iowa State Laboratory revealed that serologic (IgM and IgG) testing had poor predictive value for the detection of mumps cases. Therefore, early this summer, the ISDH Laboratory recommended that health care providers collect buccal swabs and/or urine specimens for viral culture and PCR testing, rather than serology. Studies to define the sensitivity and specificity of mumps IgM antibody tests are in progress at the CDC Laboratory. As information becomes available, the ISDH will reevaluate the use of serologic analysis for routine diagnostic testing of mumps disease.

Revised ACIP Guidelines

On June 1, 2006, the Advisory Committee on Immunization Practices (ACIP) published revised recommendations for the control and elimination of mumps. Major emphasis was placed on vaccination of health care workers, school-age children, college students, and international travelers. Those revisions can be found at:

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5522a4.htm?s_cid=mm5522a4_e

Key revisions to the 1998 ACIP recommendations are as follows:

Acceptable Presumptive Evidence of Immunity

- Documentation of adequate vaccination is now two doses of a live virus vaccine instead of one dose for:
 - School-aged children (i.e., grades K-12)
 - Adults at high risk (i.e., persons who work in health-care facilities, international travelers, and students at post-high school education institutions)
- Routine Vaccination for Health Care Workers
 - Persons born during or after 1957 without other evidence of immunity: 2 doses of live mumps vaccine
 - Persons born before 1957 without other evidence of immunity: consider recommending 1 dose of live mumps virus vaccine

Indiana Response and Guidelines

As stated above, Indiana received over 100 reports of suspected cases of mumps since the onset of the multi-state outbreak, most of which were ruled out. Each case was investigated, and most had appropriate laboratory specimens collected and analyzed. The ISDH issued revised guidelines for the reporting, clinical diagnosis of mumps, laboratory submission of specimens, prevention through immunization, and other information needed to control mumps disease transmission. These guidelines can be found on the ISDH Web site at <http://www.IN.gov/isdh/> (click on Health Professionals and then Disease Information).

During the next few months, the ISDH will issue revised mumps control guidelines and recommendations.

As noted in the August 2006 issue of *Immunization Works* (published by the CDC National Immunization Program) the multi-state mumps outbreak is subsiding. The entire *Immunization Works* newsletter can be found at: <http://www.cdc.gov/nip/news/newsletters/imwrks/imwrks.htm>

Immunization Works – August 2006

Mumps Outbreak Subsides: The mumps outbreak that began in Iowa in December 2005 appears to be subsiding, as over 98% of cases had onset dates from January 1 through June 30. From January 1 through July 22, 2006, a total of 4908 cases of mumps were reported to the CDC from 15 outbreak-affected states. The majority of cases, 4894 (98 percent) were reported from eight states (Iowa, Kansas, Illinois, Nebraska, Missouri, South Dakota, Pennsylvania, and Wisconsin) that had endemic, in-state transmission (i.e., outbreak states). An additional 14 cases associated with travel to, or temporary residence in, an outbreak-affected state were reported from seven states (Colorado, Minnesota, Mississippi, New York, New Mexico, Michigan, and Texas). It is expected that once the outbreak is over, the number of cases being reported each week will be higher than in previous years, due to improved mumps surveillance.

The age-group-specific incidence was highest among persons 18-24 years old (32 per 100,000), reflecting transmission in college and university settings. While most cases occurred among persons who had received two doses of mumps-containing vaccine (the vaccine has an estimated efficacy of 90 percent), preliminary data suggest attack rates were higher among persons who had received only one dose of vaccine. In July, the American College Health Association (ACHA) distributed a letter to universities and colleges across the United States. The letter encouraged the vaccination of enrolled students with two doses of MMR vaccine before returning to school. State and local health departments are encouraged to remain vigilant for mumps cases, especially among college and university students when they return to school in the fall. For more information about mumps, please visit the CDC's mumps website at: www.cdc.gov/nip/diseases/mumps/default.htm.

Quit Smoking: Improve Your Health Now

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Once you make the decision to improve your health, the most important next step is to determine which factors influence your health. The goal is to increase the positive factors and to decrease the negative ones. Smoking tobacco is definitely a major negative factor—or “risk factor”—and

is the focus this article. Quitting the smoking habit is a good idea no matter how much you smoke or how long you have been smoking. (1, 2)

Eliminate the smoking habit, improve your health—it is that simple.

Smoking is responsible for 87 percent of lung cancer deaths in the United States. (2, 3) Further, smoking is strongly linked to many other health problems, including lung, oral, throat, laryngeal, and esophageal cancers; chronic lung diseases; and cardiovascular diseases. Recently, the list has expanded to include abdominal aortic aneurysm, acute myeloid leukemia, cataract, cervical cancer, kidney cancer, pancreatic cancer, pneumonia, periodontitis, and stomach cancer. (2) Non-smokers exposed to second-hand smoke also are at significant risk, as they inhale many of the same cancer-causing agents to which active smokers voluntarily expose themselves. According to a recent report by the U.S. Surgeon General, there is no risk-free level of exposure to second-hand smoke, and a smoke-free environment is the only way to eliminate the risk. (4)

It is helpful to gain a basic understanding of how smoking tobacco affects the body, both acutely and chronically. The lungs exchange 8,000-9,000 liters of air each day to meet the body's metabolic needs. When breathing clean air, the lungs enable oxygen (O_2) in the air to bind to circulating red blood cells, so it can travel to and nourish all parts of the body and allow carbon dioxide to exit the body. Introducing tobacco smoke, which contains carbon monoxide, nicotine, and many chemicals, is where the trouble begins.

Carbon monoxide (CO) binds to the hemoglobin in red blood cells much more readily than O_2 ; therefore, when you inhale tobacco smoke, the CO out competes much of the O_2 for the passenger seat on the red blood cell. Also, CO binds to hemoglobin in such a way that O_2 has a more difficult time unloading once it reaches its destination. These events significantly reduce the amount of life-giving O_2 available to the tissues that need it. (5)

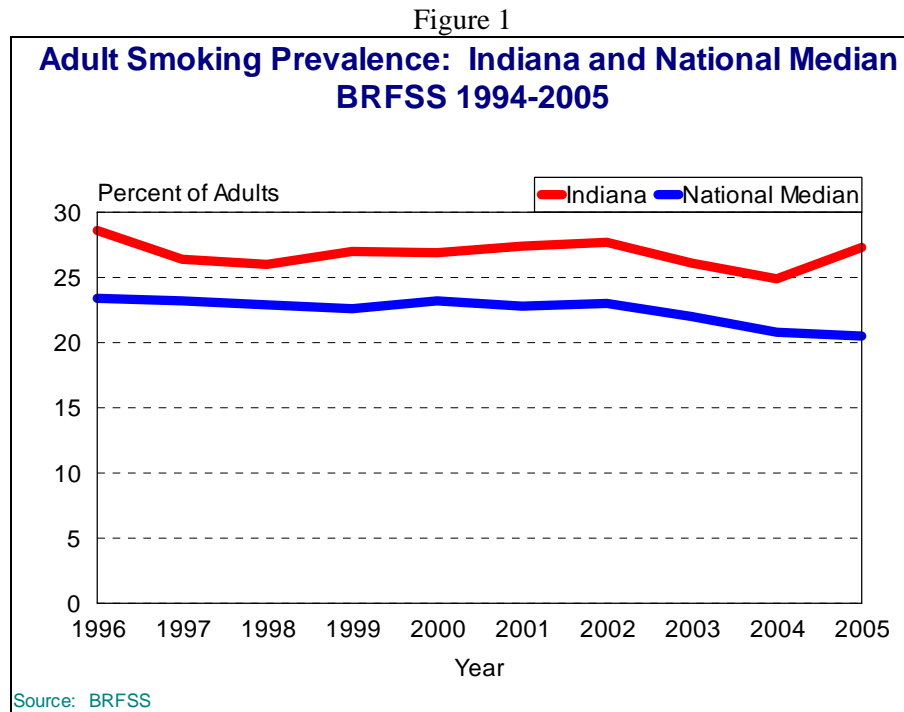
Also, through the tobacco smoke, nicotine enters the bloodstream through the lungs and very quickly causes an increase in heart rate and blood pressure and constricts the blood vessels. These effects, coupled with the negative influence of CO, make the heart work harder to deliver enough blood to the body and, hence, place many individuals at an increased risk for myocardial infarction and other cardiovascular problems. Nicotine also is highly addictive and is largely responsible for the difficulty smokers have in kicking the smoking habit. (6)

Adding further insult, 69 cancer-causing agents have been identified in tobacco smoke, 7 of which are likely to cause cancer in humans. (2) Chronic exposure to these known carcinogens dramatically increases the probability of the smoker developing cancer. In addition to nicotine, toxic substances such as arsenic, lead, and tar also are present in tobacco smoke. (7) As stated previously, health risks from these exposures to tobacco smoke are present for the active smoker, as well as for non-smokers breathing second-hand smoke.

So, the take-home message broadens a bit: Eliminate tobacco smoke from your environment, improve your health.

As mentioned in previous issues of the *Indiana Epidemiology Newsletter*, there is no reporting requirement for health behaviors such as smoking; hence, these data must be obtained from another source. That source, the Behavioral Risk Factor Surveillance System (BRFSS) survey, is an annual, random-digit dial telephone survey of adults aged 18 years and older. The survey is conducted through a cooperative agreement with the Centers for Disease Control and Prevention, and all 50 states and the District of Columbia participate.

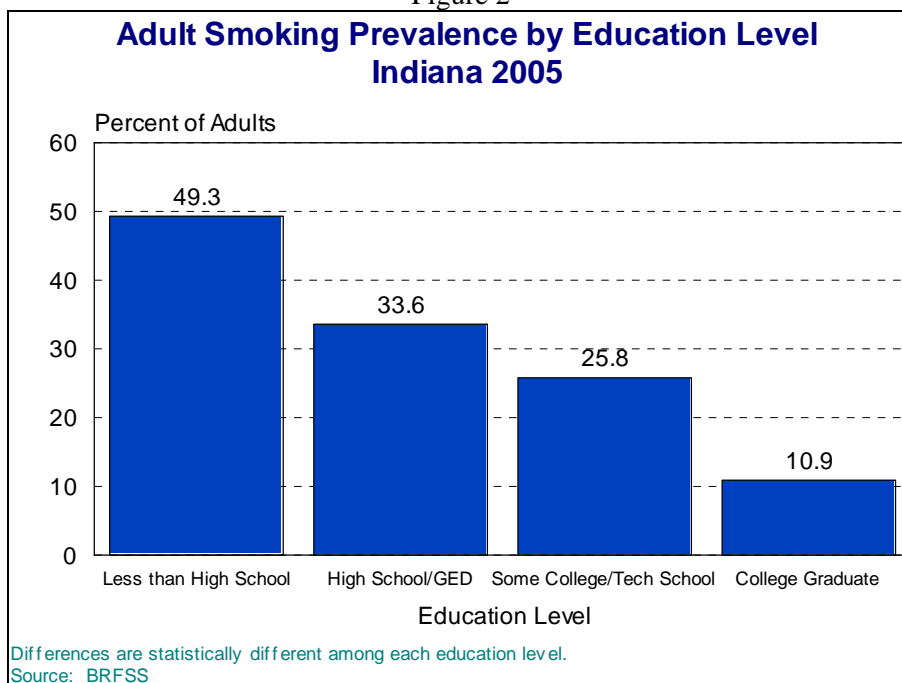
So how does Indiana measure up to the rest of the United States with regard to the smoking habit? According to 2005 BRFSS data, the Hoosier state has the second highest percentage (27.3%) of current adult smokers (second only to Kentucky). (8) In 2004, 24.8 percent of adults reported smoking, which was a significant decrease compared to 2002 (27.7%) and 1996 (28.6%). (9) The national median for smoking prevalence has decreased since 2002 (see Figure 1).



In 2005, males in Indiana were statistically more likely to be current smokers than females (29.7% vs. 25.0%, respectively). African-American respondents were statistically more likely to report current smoking than Caucasian respondents (36.8% vs. 26.1%, respectively), while Hispanic (can be of any race) respondents (33.3%) were not statistically different from Caucasian or African-American respondents. (9)

Smoking prevalence is related to income and education. Adults with household incomes of \$50,000 or more were statistically less likely to smoke than those with household incomes of less than \$50,000. Smoking prevalence decreased as education increased (see Figure 2).

Figure 2



Respondents who had received medical care in the past 12 months were asked how many times a doctor or health provider had advised them to quit smoking. Of those respondents, 61.5 percent reported getting advice to quit smoking by a doctor or other health provider. Additionally, 32.4 percent of those respondents reported that their doctor discussed medication to assist with quitting smoking, and 23.6 percent reported that their doctor or health provider recommended or discussed methods and strategies other than medication to assist them with quitting smoking. There was no significant difference between Caucasian and African-American respondents for being advised to quit smoking three, four, and five or more times. This information was not available for Hispanic respondents. Caucasian respondents were more likely than African-American respondents to report having quit smoking (23.6% vs. 14.2%, respectively). (9)

As mentioned previously, kicking the smoking habit will improve your health, but what is the best way to quit? Although there may not be one best method to quit, according to the American Cancer Society, there are four critical factors for quitting:

1. Making the decision to quit
2. Setting a quit date and choosing a quit plan
3. Dealing with withdrawal
4. Staying tobacco-free

Becoming well acquainted with these factors will dramatically improve your ability to successfully quit the tobacco habit. (10, 11)

Further, there are many organizations and resources available to provide help. An excellent place to find the help you need is on the INShape Indiana Web site, where an entire section is devoted to supporting your goal to quit the tobacco habit (<http://www.IN.gov/inshape/tobacco/>).

Making the decision to quit smoking—and acting on it—will be one of the most important actions you take in your life. Do it!

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INDIANA STATE DEPARTMENT OF HEALTH IMMUNIZATION PROGRAM PRESENTS:

Immunizations from A to Z

Immunization Health Educators offer this FREE, one-day educational course that includes:

- Principles of Vaccination
- Childhood and Adolescent Vaccine-Preventable Diseases
- Adult Immunizations
 - Pandemic Influenza
- General Recommendations on Immunization
 - Timing and Spacing
 - Indiana Immunization Requirements
 - Administration Recommendations
 - Contraindications and Precautions to Vaccination
- Safe and Effective Vaccine Administration
- Vaccine Storage and Handling
- Vaccine Misconceptions
- Reliable Resources

This course is designed for all immunization providers and staff. Training manual, materials, and certificate of attendance are provided to all attendees. Please see the Training Calendar for presentations throughout Indiana. Registration is required. To attend, schedule/host a course in your area or for more information, please contact Angie Schick **317.460.3671** or aschick@isdh.IN.gov; or <http://www.IN.gov/isdh/programs/immunization.htm>

ISDH Data Reports Available

The ISDH Epidemiology Resource Center has the following data reports and the Indiana Epidemiology Newsletter available on the ISDH Web Page:

http://www.IN.gov/isdh/dataandstats/data_and_statistics.htm

HIV/STD Quarterly Reports (1998-Dec 05)	Indiana Mortality Report (1999, 2000, 2001, 2002, 2003, 2004)
Indiana Cancer Incidence Report (1990, 95, 96, 97, 98)	Indiana Infant Mortality Report (1999, 2002, 2003, 2004)
Indiana Cancer Mortality Report (1990-94, 1992-96)	Indiana Natality Report (1998, 99, 2000, 2001, 2002, 2003, 2004)
Combined Cancer Mortality and Incidence in Indiana Report (1999, 2000, 2001, 2002)	Indiana Induced Termination of Pregnancy Report (1998, 99, 2000, 2001, 2002, 2003, 2004)
Indiana Health Behavior Risk Factors (1999, 2000, 2001, 2002, 2003, 2004, 2005)	Indiana Marriage Report (1995, 97, 98, 99, 2000, 2001, 2002)
Indiana Health Behavior Risk Factors (BRFSS) Newsletter (9/2003, 10/2003, 6/2004, 9/2004, 4/2005, 7/2005, 12/2005, 1/2006, 8/2006)	Indiana Infectious Disease Report (1997, 98, 99, 2000, 2001, 2002, 2003)
Indiana Hospital Consumer Guide (1996)	Indiana Maternal & Child Health Outcomes & Performance Measures (1990-99, 1991-2000, 1992-2001, 1993-2002, 1994-2003)
Public Hospital Discharge Data (1999, 2000, 2001, 2002, 2003, 2004)	

HIV Disease Summary

Information as of July 31, 2006 (based on 2000 population of 6,080,485)

HIV - without AIDS to date:

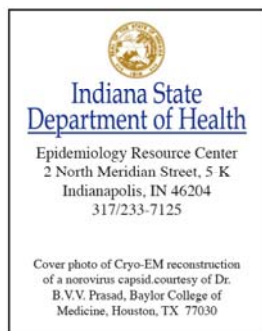
337	New HIV cases from August 2005 thru July 2006	12-month incidence	5.86 cases/100,000
3,618	Total HIV-positive, alive and without AIDS on July 31, 2006	Point prevalence	62.90 cases/100,000

AIDS cases to date:

344	New AIDS cases from August 2005 thru July 2006	12-month incidence	5.98 cases/100,000
3,852	Total AIDS cases, alive on July 31, 2006	Point prevalence	66.97 cases/100,000
8,013	Total AIDS cases, cumulative (alive and dead)		

REPORTED CASES of selected notifiable diseases

Disease	Cases Reported in July MMWR Weeks 27-30		Cumulative Cases Reported January –July MMWR Weeks 1-30	
	2005	2006	2005	2006
Campylobacteriosis	81	70	217	248
Chlamydia	1,489	1,226	11,343	11,587
<i>E. coli</i> O157:H7	5	6	29	28
Hepatitis A	2	0	11	16
Hepatitis B	2	5	18	28
Invasive Drug Resistant <i>S. pneumoniae</i> (DRSP)	19	5	137	105
Invasive pneumococcal (less than 5 years of age)	7	6	48	43
Gonorrhea	655	516	4,571	5,023
Legionellosis	2	5	12	13
Lyme Disease	9	3	15	8
Measles	33	0	33	1
Meningococcal, invasive	1	2	14	15
Mumps	0	0	0	10
Pertussis	28	29	173	137
Rocky Mountain Spotted Fever	0	1	0	4
Salmonellosis	93	106	293	361
Shigellosis	4	10	47	78
Syphilis (Primary and Secondary)	4	4	40	42
Tuberculosis	8	12	76	79
Animal Rabies	3 (bats)	3 (bats)	7 (bats)	8 (bats)
For information on reporting of communicable diseases in Indiana, call the <i>Epidemiology Resource Center</i> at (317) 233-7125.				



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